

Table ES-7. Summary Comparison of Environmental Effects of the Alternatives to Minimize the Adverse Effects of Fishing on EFH

Category of Effect	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5A	Alternative 5B	Alternative 6
Habitat	No substantial adverse effects would be anticipated. Fishing activities would not affect EFH in a manner that is more than minimal and temporary in nature.	Small trawl closures to rockfish on GOA slope would have no substantial effects on habitat.	Closure of GOA slope to rockfish trawling would have positive effects on epibenthic structures and coral on GOA slope.	Bottom trawl closures would have positive effects on protection of coral in the AI area. Gear modifications may have a positive effect on epibenthic structures in BS. Small trawl closures on GOA slope to rockfish fishing would have no substantial effects on habitat.	Bottom trawl closures would have positive effects on epibenthic structure and coral in GOA; substantially improved protection of coral in the AI would occur. Gear modifications may have a positive effect on epibenthic structures in BS.	Same effects as Alternative 5A in GOA and BS would occur. The substantially larger closures in AI would provide more protection of coral and epibenthic structures. The closures would be largest under Option 2, slightly smaller under Option 1, and smaller yet under Option 3.	Closures to bottom tending gear would have moderately positive effects on epibenthic structures in all areas and positive effects on the protection of coral on the AI and GOA slope areas.
Target Species	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated. Bering Sea closures may benefit growth of snow crabs.	Same effects as Alternative 4 would occur.	Same effects as Alternative 4 would occur.	For most species, no substantial effects would be anticipated. Negative effects would be anticipated for scallops and some crabs.

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(continued)

Category of Effect	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5A	Alternative 5B	Alternative 6
Economic and Socioeconomic Aspects of Federally Managed Fisheries	No substantial effects would be anticipated.	Gross revenue at risk would be <\$1 million. Slight increases in costs (operating, consumer, management, enforcement) expected. No effects on communities would be expected.	Gross revenue at risk would be \$2.6 million. More increases in costs and reduction in safety would be expected. No effects on communities would be expected.	Gross revenue at risk would be \$3.5 million. Even more increases in costs and reduction in safety would be expected. No effects on communities would be expected.	Gross revenue at risk would be \$7.9 million. Even more increases in costs and reduction in safety would be expected. Negative effects on western GOA communities would be expected.	Gross revenue at risk would be \$28.1 million under Option 1, \$13.0 million under Option 2, and \$7.5 million under Option 3, including TAC reduction values of \$15.2 million under Option 1 and \$3.8 million under Option 2. Even more increases in costs and reduction in safety would be expected. In particular, monitoring and enforcement costs would increase greatly. Negative effects on Western GOA communities would be expected.	Gross revenue at risk would be \$236 million. Increases in costs and a reduction in safety of smaller fixed-gear vessels would be expected. Negative effects on Alaska coastal communities dependent on fishing would be expected.

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Category of Effect	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5A	Alternative 5B	Alternative 6
Other Fisheries	No substantial effects would be anticipated.	Some slight positive effects to GOA deepwater Tanner crabs and golden king crabs would be expected.	Would be the same as Alternative 2, but slightly more benefits would be expected.	Would be the same as Alternative 2.	Would be the same as Alternative 3.	Would be the same as Alternative 3.	Would reduce revenue of halibut and state groundfish and crab fisheries.
Protected Species	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated.	Steller sea lion foraging success in AI may be impacted by spatial and temporal concentrations of fishing effort in nearshore areas.	Steller sea lion foraging success in AI may be impacted by spatial and temporal concentrations of fishing effort in nearshore areas.
Ecosystems	No substantial effects would be anticipated.	No substantial effects would be anticipated.	Trawl closure areas may have a positive effect on diversity in GOA.	Positive effects on diversity are expected in GOA, BS, and AI areas.	Alternative 5A would have slightly more benefits to diversity than Alternative 4 due to larger closure areas.	Would be similar to Alternative 5A, but slightly more benefits would occur in the AI area.	Closures to bottom tending gear would have positive effects in GOA, BS, and AI areas.

Table ES-8. Synopsis of Habitat Benefits and Economic Costs of Alternatives to Minimize the Adverse Effects of Fishing on EFH

Alt.	Percentage of Fishable Waters Closed ¹ (in addition to existing closures)			Relative Sensitivity of Protected Habitats (Based on LEI Scores)			Other Habitat Measures ²	TOTAL ADDED BENEFITS ³	Annual Revenue At Risk (in millions)					TOTAL COSTS ⁴
	GOA	BS	AI	GOA	BS	AI			GOA Ground-fish	BSAI Ground-fish	Crab	Scallop	Halibut	
1	0%	0%	0%	—	—	—	—	—	\$0	\$0	\$0	\$0	\$0	\$0
2	3.6%	0%	0%	High	—	—	—	very low	\$1	\$0	\$0	\$0	\$0	\$1
3	10.4%	0%	0%	High	—	—	—	low	\$2.7	\$0	\$0	\$0	\$0	\$2.7
4	3.6%	6.0%	19.7%	High	Low	High	gear	medium	\$0.9	\$2.6	\$0	\$0	\$0	\$3.5
5A	11.4%	8.0%	30.6%	High	Low	High	gear	med/high	\$3.6	\$4.3	\$0	\$0	\$0	\$7.9
5B Option 1	11.4%	8.0%	71.1%	High	Low	High	gear TAC bycatch	highest	\$3.6	\$24.5	\$0	\$0	\$0	\$28.1
5B Option 2	11.4%	8.0%	72.9%	High	Low	High	gear TAC bycatch	highest	\$3.6	\$9.4	\$0	\$0	\$0	\$13.0
5B Option 3	11.4%	8.0%	61.8%	High	Low	High	gear	high	\$3.6	\$3.9	\$0	\$0	\$0	\$7.5
6	17.4%	17.0%	19.7%	L/M/H ⁵	L/M/H	L/M/H	—	medium	\$163.8	⁶	\$34.1	\$1	\$38.3	\$237.2

NOTES:

1. Fishable waters are defined as those waters < 1000 m within the historic effort distribution. Closures are for bottom trawling, except for Alternative 6, which closes areas to all bottom tending gear (dredges, bottom trawls, pelagic trawls that contact the bottom, longlines, danglebars, and pots).
2. In addition to closure areas, Alternatives 4, 5A, and 5B include restrictions on configuration of bottom trawl sweeps and footropes. Alternative 5B Options 1 and 2 also include TAC reductions for AI Atka mackerel and rockfish, as well as bycatch limits for bryozoans/corals and sponges. Alternative 5B Option 1 also includes a TAC reduction for AI Pacific cod.
3. Alternatives were ranked qualitatively relative to the status quo and the alternative with the highest benefits to EFH.
4. Total costs (direct loss and at-risk loss to gross revenue) reflect the long- and short-term costs to assist in assessing practicability, but do not include any long-term benefits of increased catches that might be attributable to habitat protection, because sufficient information does not exist to estimate any such benefits.
5. L/M/H: L = low; M = medium; H = high
6. BSAI groundfish revenue at risk included with GOA

Table 4.5-6. Summary Comparison of Environmental Effects of the Alternatives to Minimize the Adverse Effects of Fishing on EFH

Category of Effect	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5A	Alternative 5B	Alternative 6
Habitat	No substantial adverse effects would be anticipated. Fishing activities would not affect EFH in a manner that is more than minimal and temporary in nature.	Small trawl closures to rockfish on GOA slope would have no substantial effects on habitat.	Closure of GOA slope to rockfish trawling would have positive effects on epibenthic structures and coral on GOA slope.	Bottom trawl closures would have positive effects on protection of coral in the AI area. Gear modifications may have a positive effect on epibenthic structures in BS. Small trawl closures on GOA slope to rockfish fishing would have no substantial effects on habitat.	Bottom trawl closures would have positive effects on epibenthic structure and coral in GOA; substantially improved protection of coral in the AI would occur. Gear modifications may have a positive effect on epibenthic structures in BS.	Same effects as Alternative 5A in GOA and BS would occur. The substantially larger closures in AI would provide more protection of coral and epibenthic structures. The closures would be largest under Option 2, slightly smaller under Option 1, and smaller yet under Option 3.	Closures to bottom tending gear would have moderately positive effects on epibenthic structures in all areas and positive effects on the protection of coral on the AI and GOA slope areas.
Target Species	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated.	No substantial effects would be anticipated. Bering Sea closures may benefit growth of snow crabs.	Same effects as Alternative 4 would occur.	Same effects as Alternative 4 would occur.	For most species, no substantial effects would be anticipated. Negative effects would be anticipated for scallops and some crabs.

Table 4.5-6. Summary Comparison of Environmental Effects of the Alternatives to Minimize the Adverse Effects of Fishing on EFH
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3	10.4%	0%	0%	High	–	–	–	low	\$2.7	\$0	\$0	\$0	\$0	\$2.7
4	3.6%	6.0%	19.7%	High	Low	High	gear	medium	\$0.9	\$2.6	\$0	\$0	\$0	\$3.5
5A	11.4%	8.0%	30.6%	High	Low	High	gear	med/high	\$3.6	\$4.3	\$0	\$0	\$0	\$7.9
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5B Option 3	11.4%	8.0%	61.8%	High	Low	High	gear	high	\$3.6	\$3.9	\$0	\$0	\$0	\$7.5
6	17.4%	17.0%	19.7%	L/M/H ⁵	L/M/H	L/M/H	–	medium	\$163.8	⁶	\$34.1	\$1	\$38.3	\$237.2

NOTES:

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2. In addition to closure areas, Alternatives 4, 5A, and 5B include restrictions on configuration of bottom trawl sweeps and footropes. Alternative 5B Options 1 and 2 also include TAC reductions for AI Atka mackerel and rockfish, as well as bycatch limits for bryozoans/corals and sponges. Alternative 5B Option 1 also includes a TAC reduction for AI Pacific cod.

3. Alternatives were ranked qualitatively relative to the status quo and the alternative with the highest benefits to EFH.

4. Total costs (direct loss and at-risk loss to gross revenue) reflect the long- and short-term costs to assist in assessing practicability, but do not include any long-term benefits of increased catches that might be attributable to habitat protection, because sufficient information does not exist to estimate any such benefits.

5. L/M/H: L = low; M = medium; H = high

6. BSAI groundfish revenue at risk included with GOA

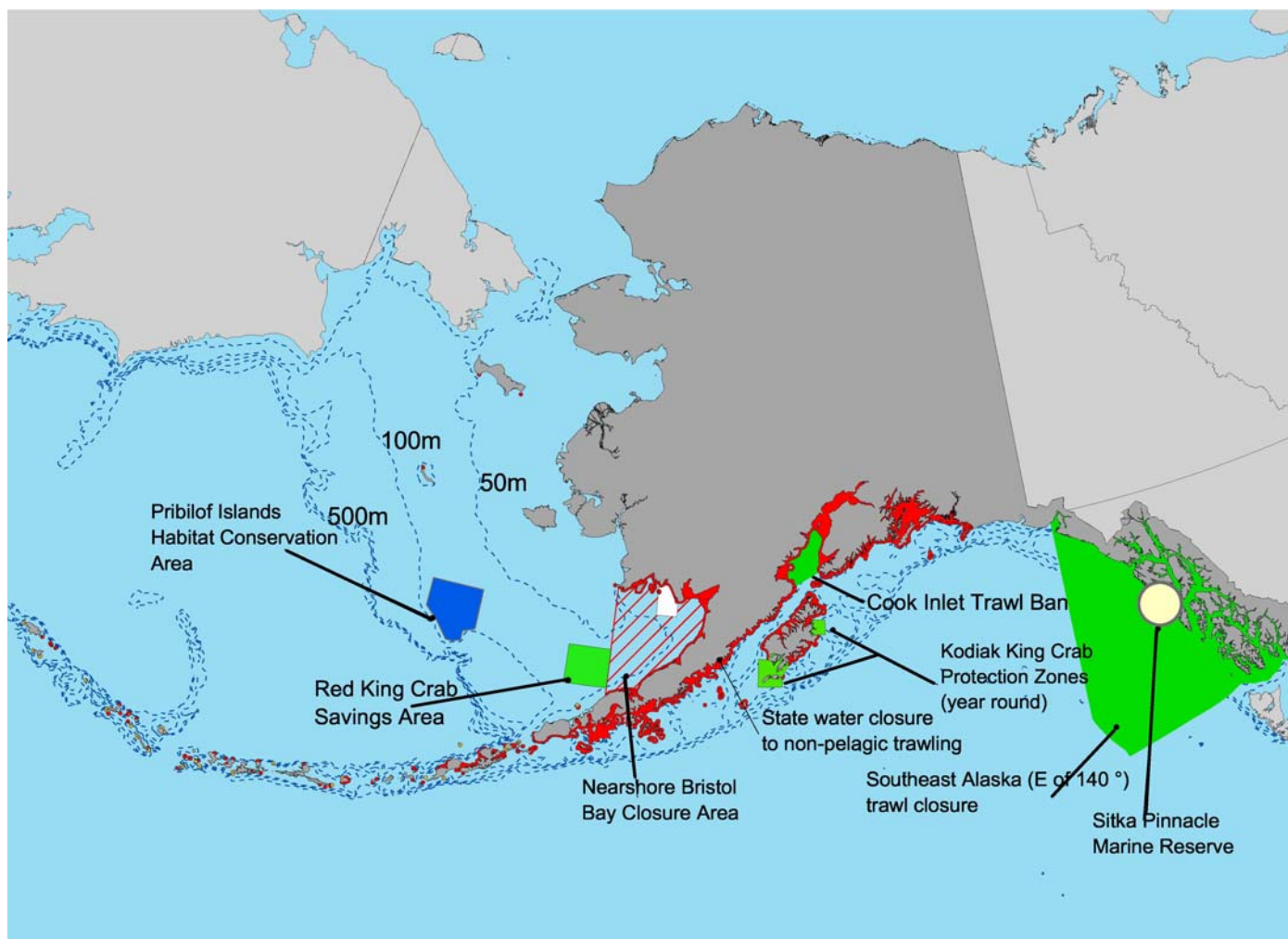
Table 4.5-8. Total Area Closed on a Year-round Basis, by Gear Type and Depth, for the Alternatives and Pre-Status Quo Baseline

Measures	Baseline	Alternative 1 Status Quo	Alternative 2 GOA Slope Trawl Closures	Alternative 3 Bottom Trawl Prohibition for GOA Slope Rockfish	Alternative 4 Bottom Trawl Closures	Alternative 5 Extended Bottom Trawl Closures	Alternative 5B Prohibit Trawling in AI Coral/Sponge Areas	Alternative 6 Closures to All Bottom Tending Gear
<div>Area closed to bottom trawling year-round:</div> <div> <div>Shelf & upper slope (<1,000m)</div> <div> <div>Bering Sea</div> <div>Aleutian Islands</div> <div>Gulf of Alaska</div> </div> </div> <div> <div>Lower slope & basin (>1,000m)</div> <div> <div>Bering Sea</div> <div>Aleutian Islands</div> <div>Gulf of Alaska</div> </div> </div> <div>TOTAL</div>								
NOTE: THIS TABLE CONTAINS ERRORS AND WILL BE REVISED FOR THE FINAL EIS								
	0nm ²	30,000nm ² (12.9 %)	30,000nm ² (12.9 %)	30,000nm ² (12.9 %)	63,014nm ² (27.1%)	67,677nm ² (29.1 %)	67,677nm ² (29.1%)	55,610nm ² (23.9 %)
	0nm ²	16,349nm ² (53.4 %)	16,349nm ² (53.4 %)	16,349nm ² (53.4 %)	23,012nm ² (75.1 %)	25,735nm ² (84.0 %)	30,133nm ² (98.3 %)	19,391nm ² (65.6 %)
	0nm ²	15,929nm ² (19.5 %)	18,907nm ² (23.1%)	24,390nm ² (29.8 %)	18,907nm ² (23.1 %)	25,219nm ² (30.8 %)	25,219nm ² (30.8 %)	23,087nm ² (28.2 %)
	0nm ²	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	57,835nm ² (94.6%)	58,047nm ² (95.0%)	58,047nm ² (95.0%)	2,951nm ² (4.8%)
	0nm ²	1,037nm ² (0 %)	1,037nm ² (0 %)	1,037nm ² (0 %)	21,531nm ² (8.2%)	80,692nm ² (30.8%)	260,141nm ² (99.4%)	17,841nm ² (6.8%)
	0nm ²	40,674nm ² (4.2 %)	41,126nm ² (4.2 %)	71,388nm ² (7.4 %)	41,126nm ² (4.2%)	72,643nm ² (7.5 %)	72,643nm ² (7.5 %)	0nm ² (0 %)
	0nm ²	103,989nm ² (6.4%)	91,490nm ² (5.6 %)	127,235nm ² (7.8 %)	226,432nm ² (13.8%)	331,020nm ² (20.2%)	513,783nm ² (31.4%)	118,850nm ² (7.3%)
<div>Area closed to all bottom tending gear:</div> <div> <div>Shelf & upper slope (<1,000m)</div> <div> <div>Bering Sea</div> <div>Aleutian Islands</div> <div>Gulf of Alaska</div> </div> </div> <div> <div>Lower slope & basin (>1,000m)</div> <div> <div>Bering Sea</div> <div>Aleutian Islands</div> <div>Gulf of Alaska</div> </div> </div> <div>TOTAL</div>								
	0nm ²	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	39,610nm ² (17.0%)
	0nm ²	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	6,036nm ² (19.7 %)
	0nm ²	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	18,052nm ² (22.0%)
	0nm ²	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	2,951nm ² (4.8%)
	0nm ²	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	16,774nm ² (6.4 %)
	0nm ²	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)	0nm ² (0 %)
	0nm ²	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	2nm ² (0 %)	83,423nm ² (5.1 %)

NOTES: Total area within regions and depth zones is as follows. For areas < 1,000 m: Bering Sea = 232,616 nm², Aleutian Islands = 30,654 nm², GOA = 91,914 nm²; for areas > 1,000 m: Bering Sea = 61,121 nm², Aleutian Islands = 261,739 nm², GOA = 969,010 nm².

Closure areas are calculated based on the amount of area closed to directed fishing for at least one target species (e.g., some SSL closures in AI) year-round, as well as areas closed to all trawling on a year-round basis.

Figure ES-1. Areas Closed Year-round to Bottom Trawling



NOTE: Very limited state-managed bottom trawling occurs in some of the depicted areas. Beam trawling for shrimp is allowed in southeast Alaska, Prince William Sound, and the Kodiak area, although effort is extremely low.

Figure ES-7. Alternatives 5A and 5B: Bering Sea Closure Areas

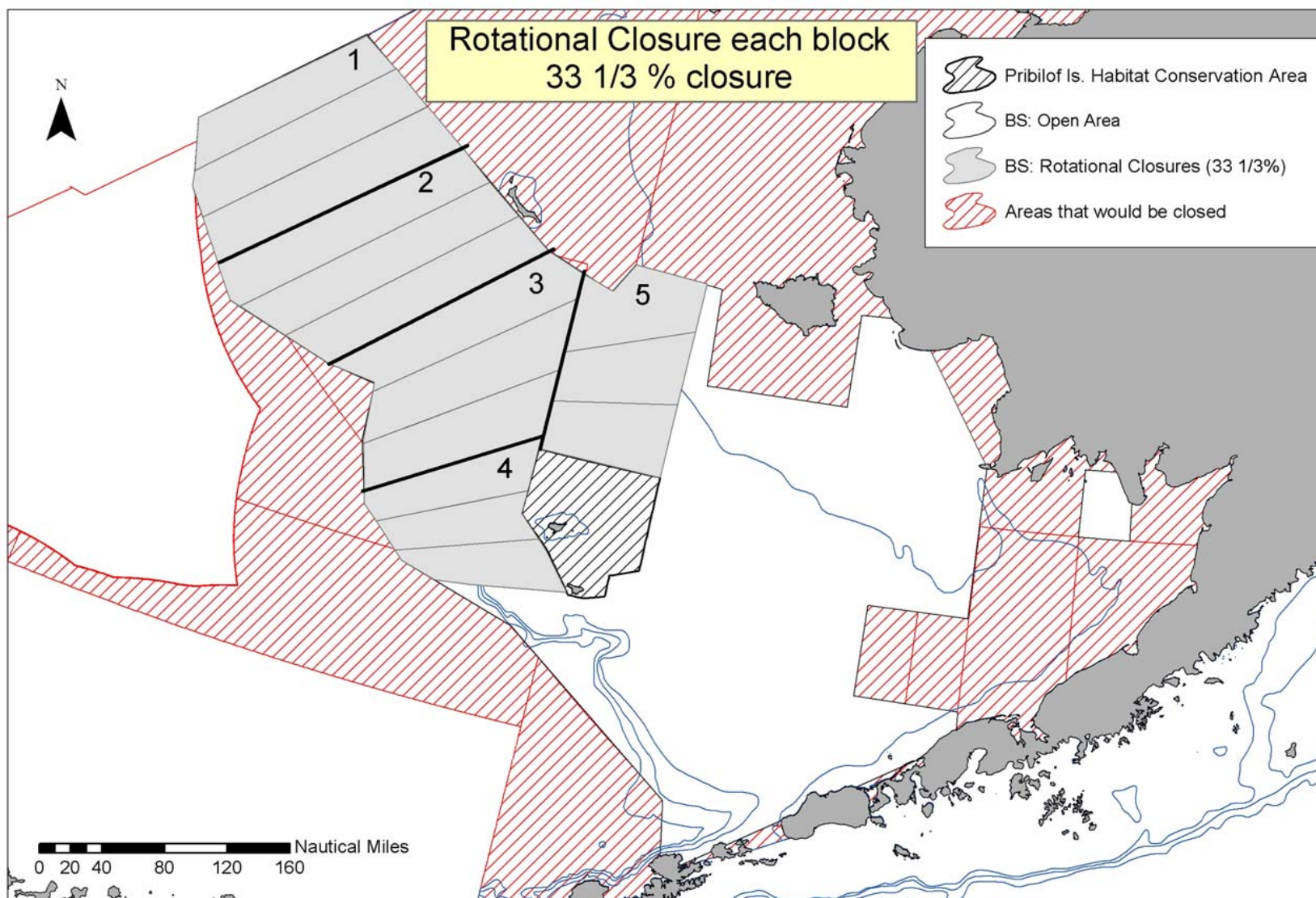


Figure ES-9. Alternatives 5A and 5B: Gulf of Alaska Open/Closed Areas

EFH Mitigation Alternative 5 Gulf of Alaska: Prohibit the use of bottom trawl gear for all groundfish fisheries on 10 designated sites of the GOA slope (200-1,000m). Additionally, prohibit the use of bottom trawls for targeting GOA slope rockfish on the GOA slope (200-1,000m)

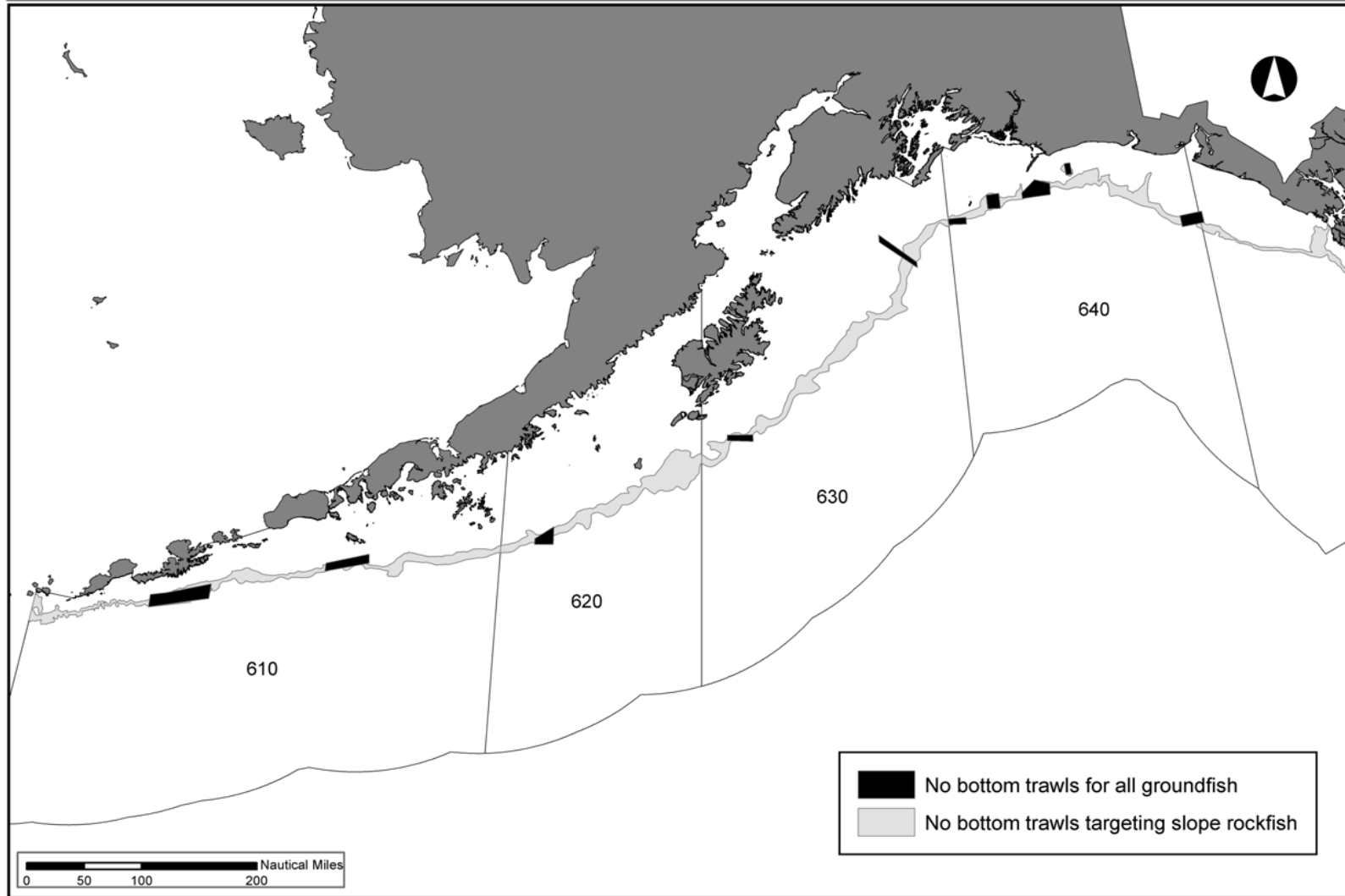
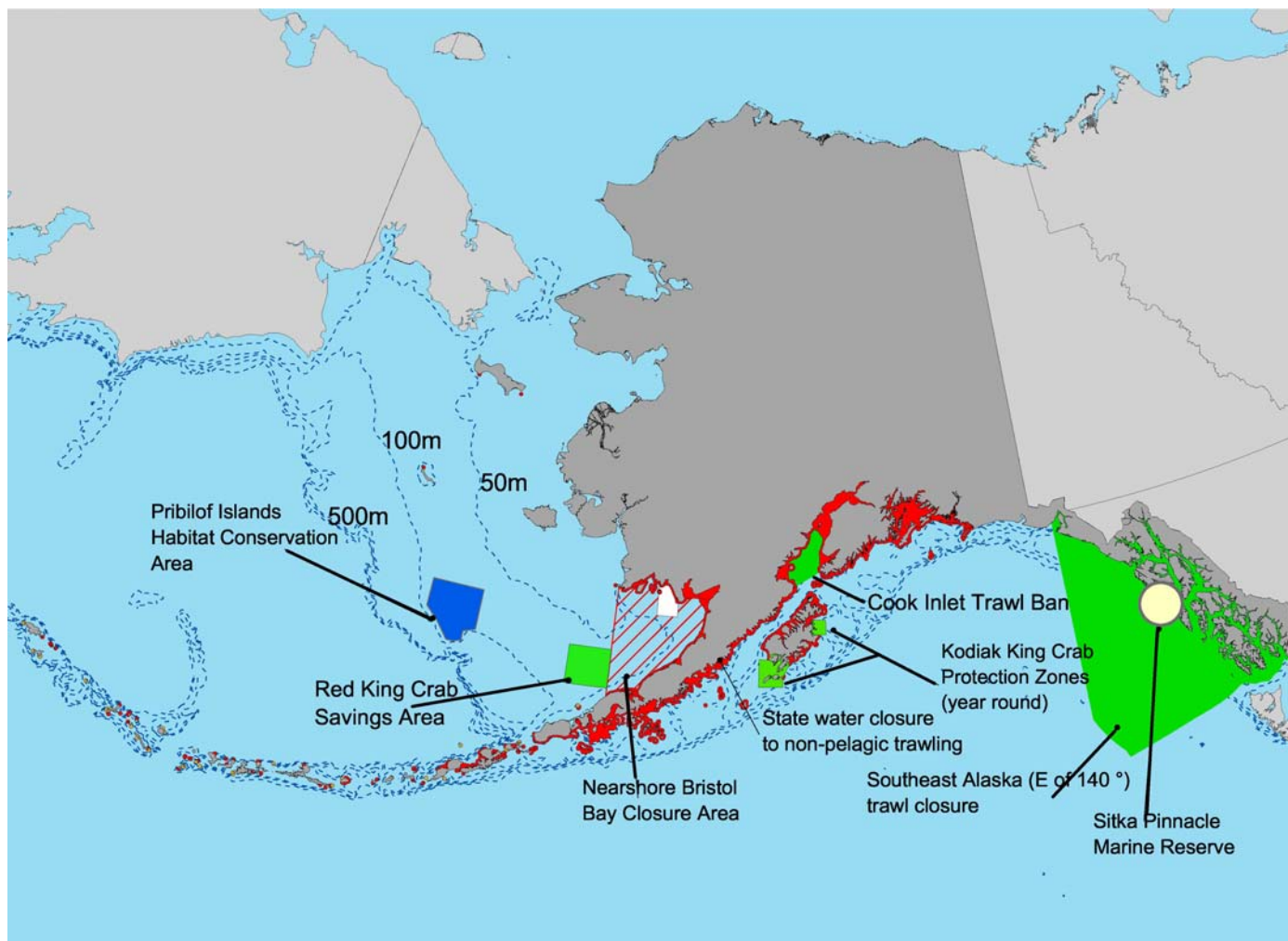


Figure 2-1. Areas Closed Year-round to Bottom Trawling



NOTE: Very limited state-managed bottom trawling occurs in some of the depicted areas. Beam trawling for shrimp is allowed in southeast Alaska, Prince William Sound, and the Kodiak area, although effort is extremely low.